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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,220	02/27/2004	Charles H. Skinner	S-103,712	4837

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UNITED STATES DEPARTMENT OF ENERGY
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WASHINGTON, DC 20585-0162

EXAMINER	
DEB, ANJAN K	
ART UNIT	**PAPER NUMBER**
2858	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/787,220	SKINNER, CHARLES H.
	Examiner	Art Unit
	Anjan K. Deb	2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Mori et al. (US 5,457,396 A).

Re claim 1, Mori et al. discloses apparatus for detecting dust (particle detecting) comprising an electrically conducting detection grid (electrode structure) having two or more interlocking tracing networks (1, 2) where each network has a plurality of tracing, where adjacent tracings have a specified separation or spacing and which in a dust free environment said grid represents an open circuit (pulse is generated only when particles (7,8) exist as shown in Fig. 3) (column 3 lines 18-20), an electrically nonconducting substrate (6) which supports said grid, a power supply (4) which is electrically coupled to said grid, a means (5) for detecting electrical changes (pulse) (Fig. 4) across said grid.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US 5,457,396 A) in view of Mehta (US 6,122,599 A).

Re claims 2-4, Mori et al. discloses all of the claimed limitations except electrical change detection means includes a means for filtering a signal generated by electrical change across said grid and a processing means including oscilloscope.

Mehta discloses method of measuring particles which includes a bandpass filter means for filtering a signal generated so as to select a range of frequencies of the pulse generated by the particle (column 11, lines 56-58) and processor (computer (210)) for processing output signals (Fig. 18).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Mori et al. by adding bandpass filter means disclosed by Mehta so as to select a range of frequencies of the pulse generated by the particle.

Re claim 5, Mori et al. discloses counter for counting pulses (Fig. 5).

Re claim 6, Mori et al. and Mehta combined did not explicitly disclose an oscilloscope but would have been obvious for displaying the pulse generating frequency plot as shown in Fig. 4 disclosed by Mori et al.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Mori et al. and Mehta by adding an oscilloscope for displaying pulse generating frequency plot.

Re claim 7, Mori et al. did not explicitly disclose power supply is capable of providing a variable bias voltage across a plurality of traces which form said grid.

Mehta disclosed switching logic 219 coupled to multiplexer 241 capable of applying variable bias voltage across a plurality of traces (array of planar electrodes)(column 12 lines 35-37)(Fig. 18)

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Mori et al. by adding a power supply capable of applying variable bias voltage across a plurality of traces as disclosed by Mehta for increasing particle measurement resolution.

Re claim 8, Mori et al. and Mehta combined did not explicitly disclose that the specified separation or spacing is determined based on the expected dust particle size, but would have been obvious since Mori et al. disclosed a range of spacing 1-50 μm that would be required to accommodate various sizes of particle.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Mori et al. and Mehta by adding specified spacing between electrodes as required for detecting particles within a certain range of sizes.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Balousek (US 5,565,786 A) discloses particle detection apparatus comprising electrically conducting detection grid having two or more interlocking tracing networks (t1, t2) where each network has a plurality of tracings (C, C') supported on insulating substrate (Fig. 3).

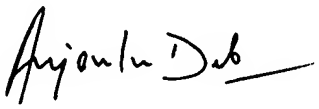
Cheiky-Zelina (US 6,204,656 B1) discloses sensor for detection of particles comprising electrically conducting detection grid (10) having two or more interlocking tracing networks (14, 16) where each network has a plurality of tracings supported on insulating substrate (Fig. 1, 2A).

Frazier (US 6,169,394 A) discloses electrical detector for micro-analysis (broadly interpreted as detecting dust particles) systems comprising application of variable voltage to electrode and teaches that the signal-to-noise ratio grows directly with the applied voltage.

Frosch (US 4,338,568 A) discloses method of detection of particles using grid 30 having plurality of tracings (Fig. 2).

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is 571-272-2228. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lefkowitz Edwards can be reached at 571-272-2180.



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7/7/05

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